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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER				
GIDADO, RASHEED				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,165

Applicant(s)

YOON ET AL.

Examiner

RASHEED GIDADO

Art Unit

2464

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-13, 15-19 is/are rejected.
- 7) ☒ Claim(s) 4 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claims 1-19 are pending in this application and claims 1-19 are presented for examination.

Claim Objections

1. Claims 4, 9, 10, 13, 14, 16 and 18 are objected to because of the following informalities:

- Claim 4 line 1 recite "(e)" instead of "transmitting the CQI response message".
- Claim 10 line 1 recite "(c)" instead of "transmitting a CQI report message".
- Claim 14 line 1 recite "(d)" instead of "allowing the subscriber station to generate a CQI response message".
- "CQI" recited in claim 9, line 6 should be "channel quality information (CQI)".
- "CQI" recited in claim 13, line 8 should be "channel quality information (CQI)".
- "CQI" recited in claim 16, line 5 should be "channel quality information (CQI)".
- "CQI" recited in claim 18, line 3 should be "channel quality information (CQI)".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites the limitation "the wireless portable Internet system" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 19, the phrase ""subscriber station arranged in an order corresponding" recited in lines 2-3 renders the claim indefinite because it is unclear what the applicant mean by the phrase. For examination purpose, Examiner will construe the phrase to mean "subscriber station arranged in predetermined order" as described in claim 4.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 6, 8-9, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pub. 2003/0054847 to Kim et al (hereafter referenced as Kim) in view of US Pub. 2003/0148770 to Das et al. (hereafter referenced as Das).

Regarding to claim 1, Kim discloses a method for reporting channel quality information by a subscriber station in a mobile communication system (see abstract: method reporting channel quality information from a mobile station to a base station), comprising:

Kim discloses receiving uplink radio resource allocation information to which a channel for reporting the channel quality information (CQI) is allocated from a base station (Fig 6 PDCH and CQICH; ¶ 0056, ¶ 0083, ¶ 0097) but does not explicitly teach " a dedicated feedback channel for reporting the channel quality information allocated from the base station. However, Das discloses receiving uplink radio resource allocation information to which a dedicated feedback channel for reporting the channel quality information (CQI) is allocated from a base station (see claim 4; Fig 1 Scheduler 118, Fig 2 Step 204, Fig 6 Feedback Channel; ¶ 0040, ¶ 0047, ¶ 0048, ¶ 0055: base station allocating dedicated feedback channel to mobile station for transmitting channel quality

information). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of dedicating an uplink feedback channel as taught by Das in the system of Kim as a design choice to reduce interference between the CQI report and communication data. This will improve the communication system throughput.

Kim further discloses receiving a CQI report message from the base station (Fig 3; ¶ 0045, ¶ 0056);

measuring a radio channel quality for communication with the base station, and generating channel quality information (Fig 11 Step 400; ¶ 0007, ¶ 0018, ¶ 0042, ¶ 0044-0045, ¶ 0074, and ¶ 0088-0090: measuring channel quality of the communication channel between base station and mobile station);

generating a CQI response message including the channel quality information (Fig 11 Steps 430/470-490; ¶ 0045, ¶ 0047, ¶ 0054); and

transmitting the CQI response message to the base station through a dedicated feedback channel in the uplink (Fig 11 Step 440, Fig 12 Step 500; ¶ 0010, ¶ 0020, ¶ 0044, ¶ 0056, and ¶ 0092: transmitting CQI response signal to the base station).

Regarding claim 6, Das further discloses the method wherein the CQI response message further includes a cyclic redundancy check (CRC) in addition to the channel quality information (¶ 0078-0083).

Regarding claim 8, Das further discloses the method wherein the CQI report message includes format information for reporting the channel quality information (Fig 3, Tables 1 and 2; ¶ 0004, ¶ 0035, ¶ 0040, ¶ 0046, ¶ 0047 and ¶ 0049).

Regarding claim 9, it is rejected for the same reasons as set forth in claim 1. **Das** further discloses transmitting and receiving CQI messages between Base Station and Mobile Station (Figures 1-7) and Kim also discloses transmitting and receiving CQI messages between Base Station and Mobile Station (Fig6, Fig 11 and Figures 12-17).

Regarding claim 12, Kim and Das disclose the method of claim 9. Kim further discloses the method further comprising: allocating downlink radio resources for the subscriber stations according to CQI response messages provided by the subscriber stations through the dedicated feedback channel (Fig 2; ¶ 0010, ¶ 0056, ¶ 0083: base station allocating resources according to CQI feedback transmitted by the mobile station).

Regarding claim 18, it is rejected for the same reasons as set forth in claim 1.

7. Claims 2, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Das as applied in claim 1 and further in view of US Pub. 2003/0157900 to Gaal et al. (hereafter referenced as Gaal).

Regarding co claim 2, combination of Kim and Das discloses the method of claim 1, but does not explicitly teach “wherein the CQI report message is broadcast”. However, Gaal discloses plurality of mobile stations (Fig 1 MS 12A-12D) receiving CQI report message from a base station (§§ 0027, ¶ 0036: base station broadcasting forward signal consisting of resource allocation to plurality of mobile stations). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of broadcasting CQI report message as taught by Gaal in the system of Kim and Das for effective resource allocation and scheduling for multiple mobile stations in the communication system.

Regarding claim 13, Kim discloses a method for requesting and reporting radio channel quality information in a mobile communication system to which a base station and subscriber stations are coupled through a mobile communication network (see abstract: method reporting channel quality information from a mobile station to a base station), comprising:

Kim discloses allowing a base station to allocate a feedback channel for channel quality report, and transmitting the allocation information to the subscriber station (Fig 6 PDCH and CQICH; §§ 0056, ¶ 0083, ¶ 0097) but does not explicitly teach a dedicated feedback channel for channel quality report. However, Das discloses allocating a dedicated feedback channel to the subscriber station for channel quality report to the base station (see claim 4; Fig 1 Scheduler 118, Fig 2 Step 204, Fig 6 Feedback Channel; §§ 0040, ¶ 0047, ¶ 0048, ¶ 0055: base station allocating dedicated feedback

channel to mobile station for transmitting channel quality information). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of dedicating an uplink feedback channel as taught by Das in the system of Kim as a design choice to reduce interference between the CQI report and communication data. This will improve the communication system throughput

Kim further discloses generating a CQI report message, sending the CQI report message (Fig 3; ¶ 0045, ¶ 0056), and requesting a CQI report from at least one subscriber station (Fig 11 Step 400; ¶ 0007, ¶ 0018, ¶ 0042, ¶ 0044-0045, ¶ 0074, and ¶ 0088-0090: measuring channel quality of the communication channel between base station and mobile station);

allowing the subscriber stations to receive the CQI report message, measure radio channel quality for communication link to the base station, and generate channel quality information (Fig 11 Step 400; ¶ 0007, ¶ 0018, ¶ 0042, ¶ 0044-0045, ¶ 0074, ¶ 0088-0090: measuring channel quality of the communication channel between base station and mobile station); and

allowing the subscriber station to generate a CQI response message including channel quality information (Fig 11 Steps 430/470-490; ¶ 0045, ¶ 0047, ¶ 0054) and transmit the CQI response message to the base station through a dedicated feedback channel for channel quality report (Fig 11 Step 440, Fig 12 Step 500; ¶ 0010, ¶ 0020, ¶ 0044, ¶ 0056, ¶ 0092: transmitting CQI response signal to the base station).

Combination of Kim and Das does not explicitly teach "broadcasting the CQI report message to the subscriber station". However, Gaal discloses plurality of mobile

stations (Fig 1 MS 12A-12D) receiving CQI report message from a base station (§ 0027, ¶ 0036: base station broadcasting forward signal consisting of resource allocation to plurality of mobile stations). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of broadcasting CQI report message as taught by Gaal in the system of Kim and Das for effective resource allocation and scheduling for multiple mobile stations in the communication system.

Regarding claim 15, combination of Kim, Das and Gaal disclose the method of claim 13, wherein the requesting and reporting method is applied to the wireless portable Internet system (see Gaal, Fig 1; ¶ 0023: wireless Internet protocol network consisting of mobile stations and base stations).

8. Claims 3, 5 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim, Das and Gaal as applied to claim 2, in view of US Pub. 2004/0203717 to Wingrowicz et al. (hereafter referenced as Wingrowicz).

Regarding claim 3, combination of Kim, Das and Gaal discloses the method of claim 2, but does not explicitly teach "wherein the CQI report message includes identifiers of at least one subscriber station arranged in a predetermined order". However, Wingrowicz discloses the CQI report message includes identifiers of at least one subscriber station (Fig 1, Fig 2; ¶ 0024, ¶ 0028: adding mobile station identification (MSID) to the CQI report containing measurement and radio quality parameter received

from the base station) arranged in a predetermined order (arranging in order is inherently disclosed since mobile stations are assigned with MSID, this will explicitly show arrangement of the mobile station in order). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of including identifiers of subscriber stations as taught by Wingrowicz in the system of Kim, Das and Gaal in order to effective identification of channel condition of each mobile station in the communication system (§§ 0011-0013, 0024).

Regarding claim 5, Wingrowicz further discloses the method wherein the identifier of the subscriber station is a connection identifier (CID) (§§ 0024, § 0028: identifier of the mobile station is an MS identification or call identification which can be interpreted as connection identification).

Regarding claim 10, it is rejected for the same reasons as set forth in claims 2 and 3.

Regarding claim 11, it is rejected for the same reasons as set forth in claim 3.

9. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Das in view of US Pub. 2003/0185242 to Lee et al. (hereafter referenced as Lee.

Regarding claim 7, Kim and Das disclose the method of claim 1, wherein the CQI response message is encoded and decoded (see Lee Fig 1 Feedback encoder 129, Feedback decoder 119) but does not explicitly teach CQI response message includes a channel quality information codeword. However, Lee teaches CQI response message includes a channel quality information codeword (§ 0026-0029). Therefore, it would have been obvious to one of ordinary skill in the art to combine the inclusion of codeword to CQI response message as taught by Lee in the system of Kim and Das in order to effectively decode the CQI response message by the base station (see lee abstract, § 0026-0029).

10. Claim 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Das and in view of US Pub. 2005/0111462 to Walton et al. (hereafter referenced as Walton).

Regarding claim 16, combination of Kim and Das discloses a base station for requesting channel information in a mobile communication system (previously discussed, see claim 13), comprising:

a base station resource controller for generating uplink radio resource allocation information in which a dedicated feedback channel for CQI report is allocated to an uplink radio resource, and including a channel information requester for generating a CQI report message (previously discussed, see claims 1 and 13. Also see Das, Fig 1 Scheduler 118, § 0023, § 0037);

a digital signal transmitter for performing adaptive modulation and coding on the uplink radio resource allocation information and the CQI report message to generate digital signals (see Das, Fig 1 Transmitter 114, Channel Encoder 111); and

an analog signal transmitter for converting the digital signals into analog signals and transmitting the analog signals to the subscriber stations (transmitter for converting digital signals to analog signal is well known in the art; see **Walton**, ¶ 0027, ¶ 0031: component that might be included in the transmitter include digital-to-analog (D/A) converters). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include D/A converters as taught by Walton in the system of Kim and Das as a design choice in transmitting analog signals in the communication system.

wherein the base station resource controller transmits the uplink radio resource allocation information to the subscriber station and transmits the CQI report message thereto (previously discussed in claims 1 and 13, also see **Das**, ¶ 0026).

11. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Das as applied to claim 16 in view of Wingrowicz.

Regarding claim 17, The base station of claim 16, wherein the channel information requester comprises: a dedicated channel allocator for generating an uplink radio resource allocation information in which a dedicated feedback channel for CQI report is allocated to an uplink radio resource (previously discussed, see claims 1 and

16); a subscriber station designator for designating at least one subscriber station for requesting channel information (previously discussed by **Wingrowicz**, see claim 3: assigning identifier to subscriber stations); and a request message generator for generating a CQI report message including identifiers of the designated subscriber stations (previously discussed, see claims 1, 13 and 16).

Allowable Subject Matter

12. Claims 4 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claim 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO 892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RASHEED GIDADO whose telephone number is (571)270-7645. The examiner can normally be reached on Monday to Thursday 9:00-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2464

RASHEED GIDADO
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